

Copy of letter of Mr. J. Lyon
to Dr Hooker on some
western Conifers.

Borrowash
Derbyshire

12th April. 1849

My dear Sir Joseph
Many thanks for Dr E's
letter.

In compliance with your request
I humbly submit the following
With regard to *A. concolor* & *louriana*
I have lately been thinking that I
should require to follow Dr E. in
classing them as one.
It will be enough for you if I
point out wherein I find them
differ. *louriana* cotyledons 6-7-8:



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concolor $\frac{5}{6}$ of A. grandis tree
4, 5, 6.) Understand that these are
the results of observations on thousands
of each sort.

I send you for comparison
& yr old plants of both forms.
I observe the S. Colorado plants
generally have shorter, narrower
leaves, flat & with more rows
of stomata ~~disappear~~
on upper surface. You will
observe its whitish bark,
similar to that of its geogra-
= phical associate subalpina.
The Sierra plant has its leaves
channelled on the lower half.



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Find specimen of 6 yr. old plant
of concolor. The arrangement
of the leaves is very different
from the Sierra plant at that
or other age.

The bracts of the cone of the
Sierra form are bluntly ovate:
those of concolor usually trun-
cate with a tendency to the
bilobed bract characteristic
of grandis.

That you may the better appre-
ciate the difference in these
two forms I send 4 yr old
specimens of Douglasii from
S. Colorado and from near the
sea N. California

They are evidently one species
yet they differ as much as do



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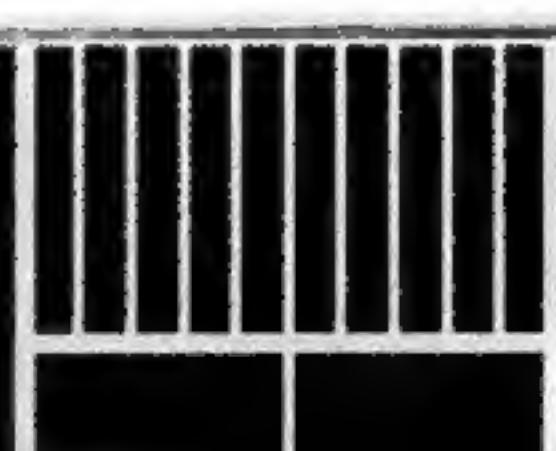
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the young of Louiana & Concolor.

Speaking of Douglasia reminds me of a somewhat remarkable form discovered 2 or 3 years ago in the mountains of California. Cotyledons $8\frac{1}{2}$: $1\frac{1}{4}$ - 2 in long; young leaves rather long and pungent. Killed this winter.

Californian Douglasia (Coast plant)
cotyledons $3\frac{1}{2}$ - $8\frac{1}{2}$, $\frac{1}{4}$ - $\frac{1}{2}$ in long.

Dr. E's subdivision of P. ponderosa is what I have been expecting for years to see; & I have no serious objection to it, though I cannot see that his descriptions as they stand can be considered descriptive of the plants. The Colorado cone though a little less than that of Oregon & Cal.



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(I found it near the mouth of Russian River) is composed of a considerably less number of scales.

In a fortnight or so I hope to be able to furnish you with fresh flowers from a plant now 60 feet in height that was raised from seed sent home by Douglas. I cannot distinguish between the vegetative organs of hon-
-derosa and Benthamicá.

The stomata on their leaves are small, numerous, in from 12-16 rows on the back without any "waxy secretion"; but a



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pretty constant peculiarity of
theirs are numerous resinous
exudations on the bracts composing
the sheath. I do not know
that the pale blue green of the
leaves of Jeffreyi as compared
with the oily green of ponderosa
is owing to "a different structure
of the epidermis cells". The
chlorophil in the cells is normally
of a different shade of green
as the only "waxy secretion" on
the leaf is between the several
stomata linking them linearly
together: the one larger, and



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in from 9-11 rows on the under surface. As a tree it is altogether less diffuse; fewer branches & branchlets; indeed the latter may be said to be alternate or one to each node with their extremities generally directed towards the trunk; bark even on old trees smoother but slightly rifted and never, I believe, until it is ten years old (ponderosa at 5 & 6 years). I say nothing about its cones. It is closely related to ponderosa and almost if not specifically distinct.

P. contorta

We have here old trees of this



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which well warrant the name -
so very unlike the cylindro-conical
plants which I lately saw at
Kew.

Ours from their age & habit I
conclude must have been raised
from Pacific Coast seed.

In all these characters they
differ much from Bolanderi
but I cannot separate the
latter from Murrayana.

When last in Edinburgh Mr.
McLab gave me cones of
Murrayana from trees that
were raised from Jeffreys' seeds;

as compared with cones of Bolanderi
they are identical. I forward
2 yr old seedling of Bolanderi.

You need not doubt its identity,
because it has 3 or 4 leaves
in each sheath; the majority



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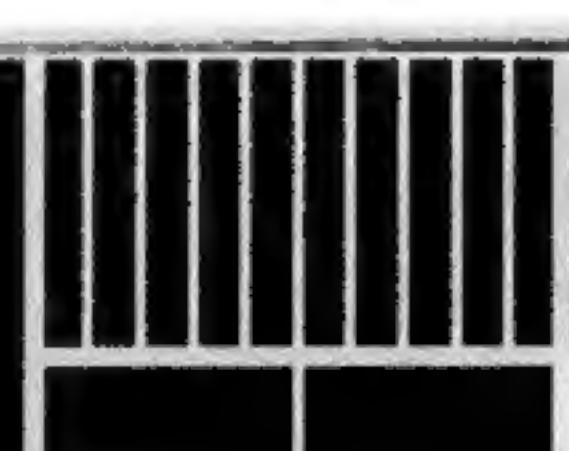
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of 2-leaved sp. are the same
at this stage of their existence,
a most significant fact, or
ought to be, to those who count
so much on the number of leaves
in the sheath.

It is a mere phase of vigour
& the normal number of leaves
to a species would seem to indicate
its specific vigour.

Botanderi has the lowest
number of & the smallest
cotyledons known to me -
3-3 4

It stands near to *muricata*
& *muricata* to *insignis* even



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though the latter is a 3-leaved sp. I cannot separate young plants until they are 2 yrs old & then with difficulty as there is much in common in their cones & seeds.

On page 409 of the Gard. Chron. for March you may find my critique on Dr E's revision of the American species. I still adhere to all I wrote, & I consider that a re-vision of the spruces is required. I am sorry to say that we did not raise seedlings of sitchensis last year, & this year they are



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just now germinated - a few of which I send along with seeds & leaves direct from Col., - the leaves to show that they have stomata ~~on~~ under surface. So that that supposed distinction between it and the Rkly Mt plant falls through. Let us see if there are any others to go the same road. The cones of sitchensis are said to be shorter than pungens (Dr E. has written that length of cone goes for nothing) and that their scales are similar, in other words the cones are described as being specifically identical - I do not say that they are so in reality only that Dr E. has made them out to be. Thus



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the best character follows the
fruit.

Dr. E. knows of prunifer only
as far north as the Wind River
Mts., Montana.

Amongst the samples of leaves
which you kindly sent me
is one labelled "T. Engelmanni
Rhy Mts, alt. 6-9000 ft, Dr.
Lyall". I suppose this is
from near the 49th parallel?
Some of the leaves are long,
stout, squared & somewhat
pungent, and look more like
prunifer than Engelmanni.
The altitude is low for Engelmanni
is it not?

In his report on the conifers
observed by him Dr. Lyall states:-
"T. Mckenziei was plentiful all
along the line (49th parallel)



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from the Pacific to the Rocky
Mts., on the Cascade Mts.
as high as 5,500 ft. and on the
Gallatin & R. R. range up to
6,000 ft."

I am not aware that there
are authentic herbaria specimens
to prove this, neither do I know
what you and Dr. E. think of
Dr. Lyall as a botanist, but
from what I have seen of
his specimens to judge from
the names appended I must
allow that he proved himself
to be at least a very shrewd



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guesser. He knew the coast plant & from there he traced it without appreciable break "all along the line" up to the Rhy Mts. Therefore it was scarcely possible for him to mistake it.

If pungens be only a geographical var. of sitchensis then I opine that the transition forms may yet be if not already found "along the line".

If specimens from all along the line parallel of that region are not yet in herbaria I consider it would be premature for anyone to further insist



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on the specific distinction
of these two plants - sitchensis
vs purpurea.

By the way does Bongard
fully describe the coast plant
under the name sitchensis
or at any rate sufficiently
well to justify Dr Engleman
in quashing the name Menzie-
sii ? -

What is the date of publication
of Bongard's book ?

I have all but finished
writing for publication in Gard.
Chron. a description of Chamae-
cyparis nuthkaensis and
should be deeply indebted to
you for the known distribution
particularly the southern
limit and altitude above



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the sea of the species.
With apologies for thus troubling
you & also for the unusual
length of my letter I beg of
you always to command
what little I may know.

Believe me ever to be
Your obedient servant
(signed) G. Syme

Sir J. D. Hooker
Kew.

It is with great pleasure
I send you herewith a small
specimen of a new
species of Thlaspi which
I collected in the
neighbourhood of
the village of Shankar
in the month of May
and those the peacock
and peahen and



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